

Listing of the Claims

1-58. (cancelled)

59. (previously presented) A semiconductor device comprising:

a substrate;

a patterned layer of conductive material disposed on the substrate and having a region thereof bordered by air gaps; and

an overcoat layer overlying the patterned layer of conductive material and the air gap, the overcoat layer having a portion thereof overlying the conductive material in the region bordered by the air gaps, said portion extending below the height of the adjacent air gaps, and the air gaps are of uniform width over the height thereof.

60. (previously presented) The semiconductor device of claim 59, wherein the conductive material in the region bordered by the air gaps forms a conductive lead of the semiconductor device.

61. (previously presented) The semiconductor device of claim 59, wherein the patterned layer of conductive material includes a plurality of regions bordered by respective air gaps, and the overcoat layer has portions thereof overlying the conductive material in the regions bordered by the air gaps, and said portions extend below the height of relatively adjacent air gaps.

62. (previously presented) The semiconductor device of claim 59, wherein the overcoat layer includes a dielectric material.

63. (previously presented) The semiconductor device of claim 59, wherein a surface of the conductive material adjacent a respective air gap is covered by a film of non-conducting material.

64. (previously presented) The semiconductor device of claim 63, wherein the non-conducting material is SiO₂ or TiO₂.

65. (previously presented) The semiconductor device of claim 63, wherein the film of non-conducting material controls corrosion of the surface of the conductive material covered by the film.

66. (previously presented) The semiconductor device of claim 63, wherein the film has a thickness of about 100 Å.

67. (previously presented) A semiconductor device comprising:
a substrate;
a patterned layer of conductive material disposed on the substrate and having a region thereof bordered by air gaps; and
an overcoat layer overlying the patterned layer of conductive material and the air gap, the overcoat layer having a portion thereof overlying the conductive material in the region bordered by the air gaps, and said portion extending below the height of the adjacent air gaps;
wherein the adjacent air gaps extend below the bottom surface of the conductive material.

68. (previously presented) A semiconductor device comprising:
a substrate;
a patterned layer of conductive material disposed on the substrate and having a region thereof bordered by air gaps; and
an overcoat layer overlying the patterned layer of conductive material and the air gap, the overcoat layer having a portion thereof overlying the conductive material in the region bordered by the air gaps; and
wherein a surface of the conductive material adjacent a respective air gap is covered by a discrete film of non-conducting material that does not extend over the conductive material beyond the air gap.

69. (previously presented) The semiconductor device of claim 68, wherein the non-conducting material is SiO₂ or TiO₂.

70. (previously presented) The semiconductor device of claim 68, wherein the film of non-conducting material controls corrosion of the surface of the conductive material covered by the film.

71. (previously presented) The semiconductor device of claim 68, wherein the film has a thickness of about 100 Å.

72. (previously presented) The semiconductor device of claim 59, wherein the semiconductor device is formed by removing a sacrificial material from a pre-cursor made in accordance with a method comprising the steps of:

(A) forming a patterned layer of the sacrificial material on a substrate corresponding to a pattern of air gaps to be formed in the semiconductor structure;

(B) depositing the conductive material on the substrate within regions bordered by the sacrificial material with the conductive material being formed with a height less than the height of the adjacent sacrificial material; and

(C) forming an overcoat layer of material overlying the patterned layer of sacrificial material and the conductive material in the regions bordered by the sacrificial material, the overcoat layer having portions thereof overlying the conductive material in respective said regions bordered by the sacrificial material, and said portions extending below the height of the adjacent sacrificial material, whereby the height of the one or more areas of sacrificial material exceeds the height of the one or more areas of second material.

73. (previously presented) The semiconductor device of claim 59, wherein the semiconductor device is formed by removing a sacrificial material from a pre-cursor comprising:

a substrate;

a patterned layer of conductive material on the substrate,

a patterned layer of the sacrificial material on the substrate, the patterned layer of sacrificial material being greater in height than the patterned layer of conductive material; and

an overcoat layer overlying the patterned layer of conductive material and the patterned layer of sacrificial material, the overcoat layer having a portion thereof overlying the conductive material in a region bordered by the sacrificial material, and said portion extending below the height of the adjacent sacrificial material.

74. (previously presented) A semiconductor device comprising:

a substrate having a planar extent;

a patterned layer of conductive material disposed on the substrate and having a region thereof bordered by air gaps; and

an overcoat layer overlying the patterned layer of conductive material and the air gap, the overcoat layer having a portion thereof overlying the conductive material in the region bordered by the air gaps, said portion extending below the height of the adjacent air gaps, and the air gaps having upper sides that are parallel to the planar extent of the substrate.